

Appl. No. 10/728,310
Preliminary Amendment with RCE
Dated August 2, 2005

REMARKS/ARGUMENTS

Applicants acknowledge receipt of the Final Office Action dated May 6, 2005, and the Advisory Action dated July 19, 2005. Claims 1-56 are pending in the application. By virtue of this response, claim 10 is amended. Please note that claims 1, 10, 17, 26, 34, and 40 are independent claims. Claims 10-12 are rejected under 35 U.S.C. § 102(b) as being anticipated by Johnson et al., U.S. Patent No. 3,755,488 ("Johnson"). In addition, claims 13-16 are rejected under 35 U.S.C. § 103 as being unpatentable over *Johnson* in view of Dai et al., U.S. Patent Publication No. 2002/0068843 A1 ("Dai"). Claims 13-16 are also rejected under 35 U.S.C. § 103 as being unpatentable over *Johnson* in view of GB 871804 ("GB Patent"). In addition, claims 1-3, 17-21, 26-28, 34, and 40-51 are rejected under 35 U.S.C. § 103 as being unpatentable over *Johnson* in view of De Rosset, U.S. Patent No. 3,325,556 ("De Rosset"). Moreover, the Examiner has rejected claims 4-9, 22-25, 29-33, 35, 36, 38, 39, and 52-55 under 35 U.S.C. § 103 as being unpatentable over *Johnson* in view of *De Rosset* as applied to claims 1-3, 17-21, 26-28, 34, and 40-51 and further in view of *Dai*. Furthermore, the Examiner has rejected claims 4-9, 22-25, 29-33, 35-37, 39, 52-54, and 56 under 35 U.S.C. § 103 as being unpatentable over *Johnson* in view of *De Rosset* as applied to claims 1-3, 17-21, 26-28, 34, and 40-51 and further in view of *GB Patent*. Applicants believe all pending claims are allowable over the art of record and respectfully request reconsideration and allowance of all claims.

I. Claims 10-12 are not anticipated by *Johnson*.

Applicants respectfully traverse the Examiner's rejections of claims 10-12 under 35 U.S.C. § 102 as being anticipated by *Johnson*. Applicants submit that the claims are not anticipated by *Johnson* because *Johnson* fails to disclose each and every limitation of these claims.

Claim 10 is an independent claim upon which claims 11 and 12 depend. Claim 10, as amended, recites "wherein the hydrogen-containing stream further comprises greater than 2,000 ppm carbon monoxide." Nothing in *Johnson* discloses wherein the hydrogen-containing stream further comprises greater than 2,000 ppm carbon monoxide. The Examiner notes that the "*Johnson* reference does not disclose the inclusion of carbon monoxide in the hydrogen gas stream" (Final Office Action, page 5, lines 13-14). Moreover, the Examiner notes that

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"[t]he rejections of claims 10-16 are maintained because these claims have not been amended to include the presence of carbon monoxide." (Final Office Action, page 2, lines 4-5).

In view of the recitations in claim 10, all of which are neither taught nor suggested by *Johnson*, the Applicants respectfully request that the Examiner withdraw the § 102 rejections and allow claim 10. Applicants further request that the Examiner also withdraw the § 102 rejections of dependent claims 11 and 12, since it is submitted that independent claim 10 is allowable. Dependent claims 11 and 12 must *a fortiori* also be allowable, since they carry with them all the limitations of the independent claim to which they ultimately refer.

II. Claims 13-16 are patentable over *Johnson* in view of *Dai*.

Applicants respectfully traverse the Examiner's rejections of claims 13-16 under § 103 as being unpatentable over *Johnson* in view of *Dai*. Applicants submit that, contrary to MPEP section 2143, the Examiner has failed to make a *prima facie* case of obviousness in rejecting such claims in that the Examiner has failed to cite references that teach or suggest all of the elements recited in the rejected claims.

Claims 13-16 are dependent upon independent claim 10. As pointed out in Section I above, nothing in *Johnson* teaches or suggests wherein the hydrogen-containing stream further comprises greater than 2,000 ppm carbon monoxide, as recited in independent claim 10. These missing limitations cannot be supplied by *Dai*. *Dai* teaches "a selective hydrogenation catalyst for selectively hydrogenating unsaturated olefin." (*Dai*, page 2, para. 0010) Nowhere does *Dai* teach or suggest wherein the hydrogen-containing stream further comprises greater than 2,000 ppm carbon monoxide. Therefore, nothing in *Johnson* in view of *Dai* teaches or suggests all of the elements of claim 10, and thus ultimately as recited in claims 13-16.

III. Claims 13-16 are patentable over *Johnson* in view of *GB Patent*.

Applicants respectfully traverse the Examiner's rejections of claims 13-16 under § 103 as being unpatentable over *Johnson* in view of *GB Patent*. Applicants submit that, contrary to MPEP section 2143, the Examiner has failed to make a *prima facie* case of obviousness in rejecting such claims in that the Examiner has failed to cite references that teach or suggest all of the elements recited in the rejected claims.

Claims 13-16 are dependent upon independent claim 10. As pointed out in Section I above, nothing in *Johnson* teaches or suggests wherein the hydrogen-containing stream further

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comprises greater than 2,000 ppm carbon monoxide, as recited in independent claim 10. These missing limitations cannot be supplied by *GB Patent*. Nowhere does *GB Patent* teach or suggest wherein the hydrogen-containing stream further comprises greater than 2,000 ppm carbon monoxide. Therefore, nothing in *Johnson* in view of *GB Patent* teaches or suggests all of the elements of claim 10, and thus ultimately as recited in claims 13-16.

IV. Claims 1-3, 17-21, 26-28, 34, and 40-51 are patentable over *Johnson* in view of *De Rosset*.

Applicants respectfully traverse the Examiner's rejections of claims 1-3, 17-21, 26-28, 34, and 40-51 under § 103 as being unpatentable over *Johnson* in view of *De Rosset*. Applicants submit that, contrary to MPEP section 2143, the Examiner has failed to make a *prima facie* case of obviousness in rejecting such claims in that (1) the Examiner has failed to cite references that teach or suggest all of the elements recited in the rejected claims, and (2) the Examiner has failed to articulate a suggestion to combine the references with a reasonable expectation of success.

Claims 1, 17, 26, 34, and 40 are independent claims upon which claims 2-3, 18-21, 27-28, and 41-51 depend, respectively. Claim 1 recites "preparing a reactant stream comprising an alkyne absorbed in a liquid absorbent" and "contacting the reactant stream with a selective hydrogenation catalyst in the presence of a gas stream comprising hydrogen and greater than 2000 ppm carbon monoxide." Claim 17 recites "absorbing one or more alkynes in a liquid absorbent to provide a reactant stream" and "contacting said reactant stream with a catalyst in the presence of a hydrogen-containing gas stream, comprising greater than 2000 ppm carbon monoxide." In addition, claim 26 recites "absorbing one or more acetylenic compounds in a liquid polar non-hydrocarbon absorbent to provide a reactant stream" and "contacting the reactant stream with a hydrogenation catalyst in the presence of a gas stream comprising hydrogen and greater than 2000 ppm carbon monoxide." Moreover, claim 34 recites "preparing a liquid reactant stream comprising between 0.5 wt-% and 10 wt-% C₂H₂ dissolved in n-methyl-2-pyrrolidone" and "contacting the reactant stream and a gas stream comprising a mixture of H₂ and greater than 2000 ppm CO in continuous flow." Furthermore, claim 40 recites "absorbing an alkyne compound in a liquid polar non-hydrocarbon absorbent to provide a reactant stream" and "contacting the reactant stream with a selective hydrogenation catalyst in the presence of a gas stream comprising hydrogen and greater than 2000 ppm carbon monoxide."

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Nothing in *Johnson* recites providing a reactant stream from a liquid absorbent and contacting the reactant stream with a catalyst in the presence of a gas stream comprising greater than 2000 ppm carbon monoxide or a hydrogen-containing stream comprising greater than 2000 ppm carbon monoxide. As noted above in section I, *Johnson* does not disclose the inclusion of carbon monoxide in a gas stream.

These missing limitations cannot be supplied by *De Rosset*. *De Rosset* does not teach contacting the reactant stream with a catalyst in the presence of a gas stream comprising greater than 2000 ppm carbon monoxide or a hydrogen-containing stream comprising greater than 2000 ppm carbon monoxide. Instead, *De Rosset* teaches adding the carbon monoxide to a reactant gas stream that contains carbon monoxide and then treating such a gas stream with hydrogen. (*De Rosset*, col. 1, lns. 54-60) For instance, *De Rosset* teaches the "hydrogenation of acetylene in a mixture containing ethylene and acetylene which comprises adding carbon monoxide to said mixture and thereafter treating said mixture with hydrogen." (*De Rosset*, col. 1, lns. 54-58) Nowhere does *De Rosset* teach such treating with hydrogen mixed with carbon monoxide. In addition, *De Rosset* does not teach a reactant stream having a liquid absorbent. For instance, the reactant stream of *De Rosset* includes "a mixture containing ethylene and acetylene" and also carbon monoxide. (*De Rosset*, col. 1, lns. 56-57) Moreover, *De Rosset* teaches a reaction occurring in the gas phase instead of in the liquid phase. For instance, *De Rosset* teaches "the feed gas mixture." (*De Rosset*, col. 2, lns. 20-26). *De Rosset* further teaches "in a gas mixture consisting predominantly of ethylene, but also containing small amounts of acetylene and ethane . . ." (*De Rosset*, col. 2, lns. 26-29).

Therefore, since neither *Johnson* nor *De Rosset* teach or suggest all elements claimed by Applicants in independent claims 1, 17, 26, 34, and 40, it is submitted that contrary to MPEP § 2143 the Examiner has not articulated a *prima facie* case of obviousness with respect to such independent claims as well as dependent claims 2-3, 18-21, 27-28, and 41-51, because the cited references fail to teach all the elements recited in the independent claims to which such dependent claims ultimately refer.

Moreover, again contrary to MPEP § 2143, the Examiner has failed to articulate a suggestion to combine *Johnson* and *De Rosset* with a reasonable expectation of success with respect to claims 1-3, 17-21, 26-28, 34, and 40-51. Applicants respectfully submit that the *prima*

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prima facie case of obviousness is thus yet further lacking. For instance, *Johnson* teaches a liquid phase reaction. *Johnson* teaches "contacting an olefin stream containing acetylenes with a liquid, aprotic, polar solvent absorbent . . ." (*Johnson*, claim 1, col. 4). *Johnson* further teaches "the direct hydrogenation of the acetylenes absorbed in a liquid solvent . . ." (*Johnson*, col. 1, lns. 66-68). In addition, *Johnson* teaches that the hydrogenation process may occur in a "trickle-bed" in which "the liquid essentially trickles downward over the catalyst." (*Johnson*, col. 3, lns. 18-25). To the contrary, *De Rosset* teaches a gas phase reaction. For instance, *De Rosset* teaches that "[t]he selective hydrogenation is effectively consummated by adding carbon monoxide to the feed gas mixture and thereafter contacting the resultant feed stock with a metal base hydrogenation catalyst . . ." (*De Rosset*, col. 2, lns. 20-26). *De Rosset* further teaches that "in a gas mixture consisting predominantly of ethylene . . . different degrees of conversion of acetylenes to ethylene or ethane can be realized . . ." (*De Rosset*, col. 2, lns. 26-31). *Johnson* teaches away from using a gas phase reaction as *Johnson* teaches that "[t]he pressure within the reaction zone . . . will be sufficient to maintain the acetylene-enriched dimethylformamide in liquid phase while in the reaction zone." (*Johnson*, col. 2, lns. 56-60, emphasis added) *Johnson* further teaches away from such a gas phase reaction by teaching that the "catalysts need not be insoluble in the absorbent-solvent but can also be completely soluble as well as being colloidally dispersed." (*Johnson*, col. 2, 36-38) In addition, the hydrogenation process teachings of *De Rosset* may not be used with the teachings of *Johnson* as the reactant gas may not be used in the trickle-bed reactor taught in *Johnson* with the liquid of *Johnson* trickling down over the catalyst. For instance, *De Rosset* does not teach trickle-bed reactors but instead teaches reactors suitable for a gas reactant such as a batch type operation using an autoclave. (*De Rosset*, col. 3, lns. 5-8) Therefore, Applicants respectfully submit that there is no reasonable expectation of success in modifying the hydrogenation process of *Johnson* with *De Rosset*.

Accordingly, the Examiner has not articulated a *prima facie* case of obviousness in respect to claims 1-3, 17-21, 26-28, 34, and 40-51, and Applicants respectfully request that the Examiner withdraw the § 103 rejections and allow such claims.

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V. Claims 4-9, 22-25, 29-33, 35, 36, 38, 39, and 52-55 are patentable over *Johnson* in view of *De Rosset* and further in view of *Dai*.

Applicants respectfully traverse the Examiner's rejections of claims 4-9, 22-25, 29-33, 35, 36, 38, 39, and 52-55 under § 103 as being unpatentable over *Johnson* in view of *De Rosset* as applied to claims 1-3, 17-21, 26-28, 34, and 40-51, and further in view of *Dai*. Applicants submit that, contrary to MPEP section 2143, the Examiner has failed to make a *prima facie* case of obviousness in rejecting such claims in that the Examiner has failed to cite references that teach or suggest all of the elements recited in the rejected claims.

Claims 4-9 are dependent upon independent claim 1, and claims 22-25 are dependent upon independent claim 17. Claims 29-33 are dependent upon independent claim 26. In addition, claims 35, 36, 38, and 39 are dependent upon independent claim 34, and claims 52-55 are dependent upon independent claim 40. As noted above in section IV, independent claims 1, 17, 26, 34, and 40 are patentable over *Johnson* in view of *De Rosset*. *Dai* cannot supply the missing recitations to *Johnson* in view of *De Rosset*. For instance, nowhere does *Dai* teach or suggest contacting the reactant stream with a gas stream having greater than 2000 ppm carbon monoxide. Therefore, nothing in *Johnson* in view of *De Rosset* and further in view of *Dai* teaches or suggests all of the elements of independent claims claim 1, 17, 26, 34, and 40, and thus ultimately as recited in claims 4-9, 22-25, 29-33, 35, 36, 38, 39, and 52-55.

VI. Claims 4-9, 22-25, 29-33, 35-37, 39, 52-54, and 56 are patentable over *Johnson* in view of *De Rosset* and further in view of *GB Patent*.

Applicants respectfully traverse the Examiner's rejections of claims 4-9, 22-25, 29-33, 35-37, 39, 52-54, and 56 under § 103 as being unpatentable over *Johnson* in view of *De Rosset* as applied to claims 1-3, 17-21, 26-28, 34, and 40-51, and further in view of *GB Patent*. Applicants submit that, contrary to MPEP section 2143, the Examiner has failed to make a *prima facie* case of obviousness in rejecting such claims in that the Examiner has failed to cite references that teach or suggest all of the elements recited in the rejected claims.

Claims 4-9 are dependent upon independent claim 1, and claims 22-25 are dependent upon independent claim 17. Claims 29-33 are dependent upon independent claim 26. In addition, claims 35-37 and 39 are dependent upon independent claim 34, and claims 52-54 and 56 are dependent upon independent claim 40. As noted above in section IV, independent claims

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1, 17, 26, 34, and 40 are patentable over *Johnson* in view of *De Rosset*. *GB Patent* cannot supply the missing recitations to *Johnson* in view of *De Rosset*. Nowhere does *GB Patent* teach or suggest contacting the reactant stream with a gas stream having greater than 2000 ppm carbon monoxide. Therefore, nothing in *Johnson* in view of *De Rosset* and further in view of *GB Patent* teach or suggest all of the elements of independent claims 1, 17, 26, 34, and 40, and thus ultimately as recited in claims 4-9, 22-25, 29-33, 35-37, 39, 52-54, and 56.

VII. Conclusion

Applicants respectfully request reconsideration, allowance of the pending claims and a timely Notice of Allowance be issued in this case. If the Examiner feels that a telephone conference would expedite the resolution of this case, the Examiner is respectfully requested to contact the undersigned.

In the course of the foregoing discussions, Applicants may have at times referred to claim limitations in shorthand fashion, or may have focused on a particular claim element. This discussion should not be interpreted to mean that the other limitations can be ignored or dismissed. The claims must be viewed as a whole, and each limitation of the claims must be considered when determining the patentability of the claims. Moreover, it should be understood that there may be other distinctions between the claims and the prior art that have yet to be raised, but which may be raised in the future.

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If any fees are inadvertently omitted or if any additional fees are required or have been overpaid, please appropriately charge or credit those fees to Conley Rose, P.C. Deposit Account Number 03-2769.

Respectfully submitted,



Tod T. Turney
PTO Reg. No. 47,146
CONLEY ROSE, P.C.
P.O. Box 3267
Houston, TX 77253-3267
(713) 238-8000 (Phone)
(713) 238-8008 (Fax)
ATTORNEY FOR APPLICANTS